

1 7. The apparatus of claim 6, wherein said at least one module
2 comprises a local processor bus for communicating data between said processing
3 device and said bus interface device.

1 8. The apparatus of claim 1, comprising:
2 a sensor interface connected to said system bus.

1 9. The apparatus of claim 8, wherein said sensor interface
2 comprises a processor for processing sensor data.

1 10. The apparatus of claim 9, wherein said sensor interface
2 comprises a bus interface device for communicating data between said processor
3 and said system bus.

1 11. The apparatus of claim 10, wherein said sensor interface
2 comprises a local processor bus for communicating data between said processor
3 and said bus interface device.

1 12. The apparatus of claim 8, wherein said sensor interface
2 comprises a video sensor interface.

1 13. The apparatus of claim 8, wherein said sensor interface
2 comprises a forward looking infrared (FLIR) sensor interface.

1 14. The apparatus of claim 1, comprising a system controller for
2 controlling access to the system bus.

0995961-092001
T00260-19655650

1 19. The method of claim 18, wherein said step of arbitrating
2 comprises the steps of:
3 establishing a clear path to a device by checking device busy signals to
4 ensure that a destination device is not busy;
5 requesting a bus grant to transmit data packets to said device;

24. The method of step 23, wherein the system bus arbitration unit grants access to a second device upon request during a transmission of a data packet by another device on the system bus.

1 26. The method of claim 25, wherein access to the system bus
2 between multiple devices connected to the system bus is granted according to
3 priority.

1 28. The method of claim 17, wherein devices connected to the system
2 bus contain local and module busses connected to the system bus by way of a
3 gateway device, which arbitrates access to nodes connected to said module bus.

1 29. The method of claim 28, wherein said gateway device arbitrates
2 access to the local and module busses according to priority.

31. The method of claim 28, wherein arbitration of access to the module bus is accomplished by the following steps:

- inquiring if the module bus is in use;
- verifying that a destination processor is not busy once the module bus is not in use;
- requesting access to the module bus to a bus gateway device;
- gaining access to the module bus from said bus gateway device; and
- transmitting data packets to said destination device.